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COMPLETE SPECIFICATION.

Process for the Production of a Permanent Preparation containing the White Corpuscles of the Blood Serum of Swine Immunised against Swine Fever.

I, Dr. Gustav Lorenz, of Darmstadt, in the Empire of Germany, Consulting Physician, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

By a special treatment swine can be rendered immune against swine fever in the following manner:—

Immune swine have in the serum of their blood matters which when inoculated in other swine are capable of causing the same to possess a passive immunity as well as to effect a cure in cases in which the swine are already infected with swine fever.

As the pure blood serum, or even that mixed with small quantities of disinfecting substances can hardly be widely applied in veterinary practice because it is too liable to decomposition, whilst on the other hand it would render it too expensive to supply it in sterilized vessels, and already divided into doses in the manner in which diphtheritic serum antidote is prepared, I have directed my attention to the attaining of a process for producing a preparation which shall possess the property of permanence, and shall moreover have the advantage that it can always be brought to a particular percentage of active material which, in view of its multiple applications, is of no small advantage.

The process discovered by me after considerable research, and which provides the advantages above referred to, is essentially as follows:—

From the fresh blood freed from its clot in the usual mechanical manner, and containing the white blood corpuscles, the serum is obtained by immediate centrifugal separation. This serum is then purified from certain components which prevent the obtaining of the preparation in question. This purification is effected by adding first a small quantity of concentrated solution of chloride of calcium *i.e.* 2 to 4 % of chloride of calcium siccum parum calculated on the water contents of the crude serum and dissolved in $1^1/_2$ times its quantity of water, and then by the dissolving in the mixture of a quantity of sulphate of ammonia so proportioned that a certain amount of slimy substances, of fatty compounds, and albuminous substances are separated, but no white corpuscles. The amount of ammonia thus added is about 10 % of the water contents of the serum + the water contents of the solution of chloride of calcium, also an amount equivalent to the weight of the chloride of calcium added *i.e.* 147 parts by weight of chloride of calcium = 132 parts by weight of sulphate of ammonia. After these bodies have been removed from the solution by filtering or simply by allowing them to cohere, the precipitation of the white corpuscles is effected from the same liquid. This body will be precipitated upon the addition of a further definite quantity of sulphate of ammonia (say 16 % calculated on the total water contents) in combination with a series of albuminous bodies, and can be obtained by

filtering through paper or other suitable filtering apparatus as a precipitate, and can be purified by washing or re-solution in water and repeated precipitation with sulphate of ammonia. After the substance thus obtained which forms a whitish somewhat gray green residue has been dried upon earthen plates it is dissolved in a fluid compounded as follows:—

In 1200 parts of water 90 parts of salicylate of soda are dissolved and 900 parts of glycerine added to the solution. This fluid is kept for use and poured separately over the dry residue, after which there is added distilled water, 5 % solution of carbonate of soda and 5 % solution of carbolic acid in equal parts, and in such quantity that the whole compound will contain about 0·5 % of carbolic acid and of carbonate of soda respectively. After the soluble parts are all dissolved, the still cloudy fluid is separated from the specifically heavier insoluble compounds in a centrifugal apparatus, which has not the usual opening which is provided for the removal of the specifically heavier parts, so that the said insoluble parts are deposited around the rim of the centrifugal drum as a kind of slime. The other insoluble substances consisting of specifically lighter parts rising gradually to the top and forming here a white scum, whilst the fluid after a shorter or longer standing appears as a more or less clear solution which can be slowly let off by suitable devices below the layers which cause the cloudiness. After the solution has been tested for its content of white corpuscles by experiments on living animals the said solution can be made normal by the further addition of any of the above mentioned fluids in the event that there is any deficiency in any of these in the original mixing.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A method for preparing a permanent preparation containing in determined proportions the white corpuscles of the blood of swine immune against swine fever, characterized by the purification of the serum with concentrated solution of chloride of calcium, and after standing a short time the fractional precipitation thereof with sulphate of ammonia in such a manner that in the first precipitate only the substances which interfere with the subsequent solution of the residues containing the white corpuscles can be included, whilst the white corpuscles are precipitated first by the further addition of sulphate of ammonia substantially as described.

2. The solution of the precipitate obtained according to Claim 1 containing the white corpuscles and dried upon plates or the like in a solvent fluid composed essentially of water, glycerine, salicylate of soda, carbonate of soda, and carbolic acid compounded in definite proportions, substantially as described.

Dated this 18th day of June 1898.

WM. P. THOMPSON & Co.,
Of 6, Lord Street, Liverpool, Agents for the Applicant.

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